

UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF TENNESSEE  
AT CHATTANOOGA

VINCENT SYSTEMS GMBH,	)	
	)	
Plaintiff,	)	Case No. 1:23-cv-00002-CEA-SKL
	)	
v.	)	
	)	
FILLAUER COMPANIES, INC. and	)	
MOTION CONTROL, INC.,	)	
	)	
Defendants.	)	
	)	

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**PLAINTIFF VINCENT SYSTEMS GMBH'S  
OPENING CLAIM CONSTRUCTION BRIEF**

**REDACTED VERSION OF DOCUMENT TO BE FILED UNDER SEAL**

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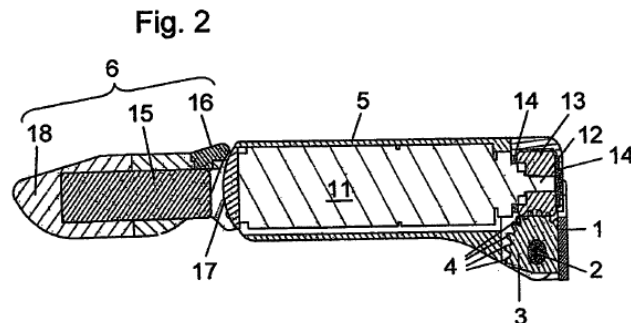
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## I. INTRODUCTION

In this case, Plaintiff Vincent Systems GmbH (“Vincent Systems” or “Plaintiff”) alleges that Defendants Fillauer Companies, Inc. (“Fillauer”) and Motion Control, Inc. (“Motion Control”) (collectively “Defendants”) infringe claims 1, 3, 4, 6, and 9 of U.S. Patent 8,491,666 (ECF No. 24-1, the “Asserted Patent”), titled “Finger Element,” by making, using, offering for sale, selling, and/or importing prosthetic hands Defendants acquire from non-party TASKA Prosthetics (“TASKA”). The parties dispute the meaning of three terms in claim 1.

The Asserted Patent is directed to a finger element for a prosthetic hand. At the core of the invention is the mechanical structure of the finger and motor, which allows for an exceptionally small motor that fits within the finger and can drive the movement of each finger separately and independently of the other fingers. This was something not previously accomplished especially in small-sized prosthetic hands (such as for women and children). Because the motor is small but must also bear up to significant use, including in both force and frequency, it is critical to ensure that the force that results when the finger is lifted and lowered is not transmitted to the motor. The invention of the Asserted Patent accomplishes this by its novel design, which uses guides, rather than the motor drive shaft, to support the threaded screw that moves the finger by rotating in connection with a cog wheel.

Figure 2 of the Asserted Patent is shown here. The threaded screw (13) surrounds and encircles the drive shaft (12), which is connected to the motoric (or “servo”) drive noted at 11:



The threaded screw is mounted on the drive shaft “form fittingly,” for example using a “key-slot-connection” so that they fit together, and so that when the drive shaft turns (rotationally) the threaded screw turns with it. As the threaded screw turns, it also rotates around the cog segment so as to lift and lower the finger. The threaded screw is separate from the drive shaft such that the force from this movement is not transmitted along the drive shaft to the motor. Accordingly, the threaded screw is “axially movable.” At the same time, though, to facilitate the finger movement, the threaded screw must be kept from moving along the length of the finger segment, noted by 5, which is done by the guidances, noted at 14.

As this Court considers the parties’ claim construction positions, it is important and appropriate to also consider those constructions in view of the overall invention. *See Kaken Pharm. Co. v. Iancu*, 952 F.3d 1346, 1352 (Fed. Cir. 2020) (“A patent’s statement of the described invention’s purpose informs the proper construction of claim terms ...”). The prevention of excessive force transmission from the threaded screw through the drive shaft to the motor is a critical point of the invention that relates specifically to the claim terms at issue.

## **II. THE ASSERTED PATENT**

As stated in its specification, the Asserted Patent discloses a novel arrangement that allows the disclosed finger element to be “smaller” and have a “long[er] lifetime,” as well as to be suitable for use “as [a] single-finger prosthesis.” Asserted Patent at 1:66-2:5. Figure 2 (reproduced above) shows an embodiment of the finger element, with a motoric drive 11 with drive shaft 12 inside the first phalanx 5. *Id.* at 5:20-21, 3:60-63. The threaded screw 13 is mounted on the drive shaft 12 in such a way that rotational force may be transferred from the drive shaft to the threaded screw. *Id.* at 5:22-23, 3:60-66. The threaded screw 13 engages with cog segments 4 of gear segment 3, in an arrangement known as a worm gear or gearing. *Id.* at 5:12-13, 2:14-19, 3:39-41. When the motor 11 rotates, threaded screw 13 also rotates, which in

turn causes the threaded screw to advance along the outer edge of the gear segment 3. *Id.* at 5:10-11, 2:14-24, 3:39-41. This causes the threaded screw to press against one of the guidances 14, which in turn causes the first phalanx 5 of the finger element to rotate about the first hinge axis 2 of the carrier component 1, as shown in Figs. 1a-1c. *Id.* at 2:14-24, 3:39-52. Movement of the first phalanx causes rotation of the second phalanx 6 about the second hinge axis through a coupling mechanism. *Id.* at 3:49-51. According to the patent specification, “the rotation movement of the first and second phalanges [i.e., phalanxes] around the according rotation axes is coupled via a coupling mechanism.” *Id.*

The patent explains that in prior art finger elements using similar components, the threaded screw was “fixed permanently to the motor shaft, such that in case of an applied load of the finger element high forces may affect the motor.” *Id.* at 1:40-41. This can lead to “early drive- or motor-damage as well as a blocking of the worm drive.” *Id.* at 1:41-44. To overcome this problem, the Asserted Patent teaches “decoupling of drive shaft and threaded screw in axial direction to the drive shaft.” *Id.* at 2:28-30. The Asserted Patent refers to this as “the axial movability of the drive shaft in the threaded screw.” *Id.* at 33-35. This solves the problem of damage to the motor by preventing axial forces from being transmitted to the motor during operation. *Id.* at 1:57-59 (“[A] mechanic partial decoupling of worm wheel and drive shaft and therefore a mechanic load revealing of the last named is disclosed.”).

The Asserted Patent discloses a novel arrangement to achieve these benefits without “additional components and/or a larger construction volume.” *Id.* at 1:57-62. The Asserted Patent further teaches that “[t]he threaded screw ... is limited in its axial movability by two guidances 14 preferably without play.” *Id.* at 3:66-4:1. This is because, as Vincent Systems’ expert Dr. Collins explains, during operation (a) the guidances (rather than the motor shaft) serve to react out the axial forces on the threaded screw (Ex. 1 (Collins Decl.) at ¶¶ 50-51) and (b) if

the gaps between the threaded screw and guidances are too large, the threaded screw can slide between the guidances causing loss of control of the finger element (Ex. 2 (Collins Trans.) at 132:2-134:20).<sup>1</sup>

### **III. LEGAL STANDARD FOR CLAIM CONSTRUCTION**

A patent provides notice to the public of the patentee's exclusive rights, and the patent's claims define the scope of those rights. Claim construction is the process where a court determines what the claims of a patent mean. Claim construction is a matter of law and a threshold issue for the Court to decide. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995), *aff'd*, 517 U.S. 370 (1996).

#### **A. The Court Is Not Obligated to Construe Terms with Ordinary Meanings**

The Court is not required to construe every disputed claim term. In particular, “a district court is not obligated to construe terms with ordinary meanings, lest trial courts be inundated with requests to parse the meaning of every word in the asserted claims.” *O2 Micro Intern. v. Beyond Innov.*, 521 F.3d 1351, 1360 (Fed Cir. 2008); *see also ActiveVideo Networks, Inc. v. Verizon Communications, Inc.*, 694 F.3d 1312, 1326 (Fed. Cir. 2012) (“The district court did not err in concluding [certain claim] terms have plain meanings that do not require additional

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<sup>1</sup> Exhibits cited herein are submitted with the Declaration of Jacob Zweig, filed herewith. The Initial Claim Construction Declaration of Dr. Collins (“Collins Decl.”) is attached as Exhibit 1; and excerpts of the transcript of the April 5, 2024 deposition of Dr. Steven Collins (“Collins Trans.”) are attached as Exhibit 2. Also referenced herein are: (a) the Rebuttal Claim Construction Declaration of Steven H. Collins, Ph.D. (“Collins Reb. Decl.”) (Zweig Decl., Ex. 3); (b) the Declaration of Pinhas Ben-Tvzi in Support of Defendants’ Proposed Claim Constructions (“Ben-Tvzi Decl.”) (Zweig Decl., Ex. 4); (c) excerpts of the transcript of the April 3, 2024 deposition of Pinhas Ben-Tvzi (“Ben-Tvzi 4/3 Trans.”) (Zweig Decl., Ex. 5); (d) an English translated version of the German Patent App. DE 10 2008 056 520.2, produced by Vincent Systems in this matter as a document with beginning Bates no. VINCENT\_004194 (Zweig Decl., Ex. 6); and (e) the original German version of German Patent App. DE 10 2008 056 520.2, produced by Vincent Systems in this matter as a document with beginning Bates no. VINCENT\_004288 (Zweig Decl., Ex. 7).

construction.”). As this Court has observed, claim construction should not be “an obligatory exercise in redundancy.” *Card-Monroe Corp. v. Tuftco Corp.*, No. 1:14-CV-292, 2016 WL 3212085, at \*6 (E.D. Tenn. June 9, 2016) (quoting *U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997)).

The law of claim construction is further clear that for a term that is entitled to its plain and ordinary meaning, a court can expressly construe it according to that meaning, or it can determine that no construction is required. *See, e.g., Biotec Biologische Naturverpackungen GmbH & Co. KG v. Biocorp, Inc.*, 249 F.3d 1341, 1349 (Fed. Cir. 2001) (holding district court did not “fail[] to discharge its duty ...” when it declined to construe the term ‘melting’”). This is an important rule of law here, because for two of the three disputed claim terms Defendants and their expert Dr. Ben-Tzvi agree with Vincent Systems that a person of ordinary skill (“POSITA”) reading the claims and specification would understand the phrases to have their plain and ordinary meaning. Ex. 4 (Ben-Tzvi Decl.) at ¶ 49 (“The specification does not define ‘servo drive’ or use the term in a manner inconsistent with its plain and ordinary meaning.”); ¶ 60 (“In my view, the definition proposed by Defendants is the plain and ordinary meaning of a ‘coupling mechanism between the first hinge connection and the second hinge connection.’”). As discussed below, though, Defendants nevertheless propose constructions that depart from that ordinary meaning, without support from the Asserted Patent’s claims or specification, and in some cases in an obvious attempt to avoid infringement through claim construction. But the purpose of claim construction is “determining the meaning and scope of the patent claims.” *See Markman*, 52 F.3d at 976. It is not to resolve issues of infringement. *See Embrex, Inc. v. Service Eng’g Corp.*, 216 F.3d 1343, 1347 (Fed. Cir. 2000) (citation omitted).

## **B. Claim Construction Methodology**

“[T]he construction of claims is simply a way of elaborating the normally terse claim language [] in order to understand and explain, but not to change, the scope of the claims.” *Embrex*, 216 F.3d at 1347 (citation omitted). Claim terms are generally to be given their “ordinary and customary meaning,” which is the “meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (*en banc*). “[T]he context of the surrounding words of the claim also must be considered in determining the ordinary and customary meaning of [disputed claim] terms.” *Id.* at 1314 (quoting *ACTV, Inc. v. Walt Disney Co.*, 346 F.3d 1082, 1088 (Fed. Cir. 2003)); *accord Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1319 (Fed. Cir. 2005) (“We cannot look at the ordinary meaning of the term in a vacuum. Rather, we must look at the ordinary meaning in the context of the written description and the prosecution history.” (internal quotation and alteration omitted)). A person of ordinary skill in the art “read[s] the claim term not only in the context of the particular claim in which the disputed term appears, but [also] in the context of the entire patent, including the specification.” *Phillips*, 415 F.3d at 1313.

Intrinsic evidence—the claims, the specification, and the prosecution history—is the primary evidence to be considered in the claim construction inquiry. *Id.* Extrinsic evidence, such as dictionaries, treatises, and expert testimony, may also be consulted to “provide background on the technology at issue, to explain how an invention works, to ensure that the court’s understanding of the technical aspects of the patent is consistent with that of a person of skill in the art.” *Id.* at 1318. However, extrinsic evidence is “less significant than the intrinsic record in determining the legally operative meaning of claim language.” *Id.* at 1317; *see also Pickholtz v. Rainbow Techs., Inc.*, 284 F.3d 1365, 1372-73 (Fed. Cir. 2002) (“Only if a disputed

claim term remains ambiguous after analysis of the intrinsic evidence should the court rely on extrinsic evidence.”).

### C. Indefiniteness

Defendants also assert that one of the disputed claim terms at issue is indefinite. To meet the definiteness requirement of 35 U.S.C. § 112, “a patent’s claims, viewed in light of the specification and prosecution history, [must] inform those skilled in the art about the scope of the invention with reasonable certainty.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 910 (2014). Definiteness is to be assessed from the perspective of a person of ordinary skill in the art at the time of the patent application was filed. *Id.* at 908. “The definiteness requirement ... mandates clarity, while recognizing that absolute precision is unattainable.” *Id.* at 910. Definiteness “is evaluated in light of knowledge extant in the art at the time the patent application is filed.” *Dow Chem. Co. v. Nova Chemicals Corp. (Canada)*, 809 F.3d 1223, 1225 (Fed. Cir. 2015). A “patent need not disclose what a skilled artisan would already know.” *Id.* Accordingly, “extrinsic evidence may play a significant role in the indefiniteness analysis.” *Id.* A party asserting indefiniteness has the burden of proof by clear and convincing evidence. *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1377 (Fed. Cir. 2015).

## IV. CLAIM TERMS AT ISSUE

Claim 1 of the Asserted Patent is reproduced below, with the disputed claim terms shown in bold:

1. A finger element, comprising:
  - a) a carrier component,
  - b) a first phalanx with a first hinge connection to the carrier component,
  - c) a second phalanx with a second hinge connection to the first phalanx,
  - d) a **servo drive** for the first hinge connection with a motor with a drive shaft and a worm gearing with a threaded screw and a cog segment that engages to the threaded screw, and
  - e) a **coupling mechanism between the first hinge connection and the second hinge connection**, wherein

f) the threaded screw is supported on the drive shaft from fittingly and **axially movable as well as guided in axial direction by separate guidances**.

Asserted Patent, Claim 1.

While as shown here there are three claim terms (or phrases) at issue, Vincent Systems respectfully submits that only one of these terms—“axially movable as well as guided in axial direction by separate guidances”—requires construction. Vincent Systems treats this phrase as one term, while Defendants propose separating it for construction. For the other two disputed terms—“servo drive” and “a coupling mechanism between the first hinge connection and the second hinge connection”—Vincent Systems proposes that those terms be given their plain and ordinary meaning, while Defendants propose constructions despite also acknowledging these terms would be understood by a person of ordinary skill in the art.

## V. CONSTRUCTION OF TERMS IN DISPUTE

### A. “servo drive”

Claim	Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
Claim 1	This phrase should be given its plain and ordinary meaning.  Or “motor with a drive shaft.”	A self-contained feedback system that controls mechanical movement.

The term “servo drive” appears in claim 1 of the Asserted Patent as: “a **servo drive** for the first hinge connection with a motor with a drive shaft and a worm gearing with a threaded screw and a cog segment that engages to the threaded screw.” Because the plain and ordinary meaning of this term is clear from the language of the claim itself, and reinforced by the specification, Vincent Systems maintains that no construction is necessary. Alternatively, this Court should construe this term according to its plain meaning to mean “a motor with a drive shaft” as explicitly taught by claim 1 and the patent specification.

1. “Servo drive” should be accorded its plain and ordinary meaning

The plain meaning of the term “servo drive” is clear from the claim language itself, as a “motor with a drive shaft.” Asserted Patent, Claim 1 (“a servo drive ... with a **motor with a drive shaft** ....”). This meaning is also found in the patent specification, which states: “a servo drive is envisaged for the first hinge connection. This servo drive encloses **a motor with or without integrated gear transmission to a drive shaft.**” Asserted Patent, 2:14-16 (emphasis added); *see also id.* at 4:9-12 (“The drive 11 encloses at least an electric motor as servo member, optionally also a gearing unit and/or for a use for instance as autarkic finger-prosthesis an electric voltage source as well as control electronics ...”); *id.* at 3:60-63 (“FIG. 2 shows a sectional view of a finger element. A motoric drive 11 for a threaded screw 13 that is directly attached to the drive shaft 12 is arranged inside a pipe-shaped first phalanx 5.”). As Vincent Systems’ expert Dr. Collins explains,<sup>2</sup> this use of the term “servo drive” is consistent with its ordinary meaning, and a POSITA would understand it as such. Ex. 1 (Collins Decl.) at ¶¶ 32-38. This term therefore does not require construction.

If, however, the Court determines that a construction is necessary, then it should be construed as “a motor with a drive shaft,” as stated in claim 1 and which is how a POSITA would understand the plain meaning of this term in the context of the Asserted Patent. *See World Class Tech. Corp. v. Ormco Corp.*, 769 F.3d 1120, 1123 (Fed. Cir. 2014) (claim terms should be given “their ordinary meaning in the context of the claim and the whole patent document”).

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<sup>2</sup> Dr. Steven Collins, PhD., is a tenured Associate Professor in the Department of Mechanical Engineering, and the Director of the Biomechatronics Laboratory, at Stanford University. He holds a Bachelor of Science in Mechanical Engineering from Cornell University, and a Master of Science and Doctoral degree in Mechanical Engineering from the University of Michigan. He has 25 years of experience in the design, development, and analysis of exoskeletons and prosthetic limbs that enhance human locomotor performance and has received numerous awards, recognitions, and patents in this field.

2. Defendants’ proposed construction for “servo drive” lacks a basis in the intrinsic evidence and is unsupported by extrinsic evidence

Defendants’ proposed construction of “servo drive”—as “a self-contained feedback system that controls mechanical movement”—asks the Court to narrow the claimed “servo drive” in two ways: first, by adding a requirement of a “feedback system that controls mechanical movement” as a part of the “servo drive;” and second, by requiring that this feedback system be “self-contained.” Both requirements are, though, contrary to the intrinsic evidence and are additionally contradicted by extrinsic evidence.

First, nothing in the intrinsic record requires the claimed “servo drive” to include a feedback system that controls mechanical movement—indeed, the words “feedback system” do not appear in the patent or prosecution history at all. More critically, claim 1 itself expressly defines the servo drive: “**a servo drive** for the first hinge connection **with a motor with a drive shaft.**” Asserted Patent, Claim 1 (emphasis added). This definition does not include a feedback system. The specification of the Asserted Patent is also consistent with the plain meaning of “servo drive” as a motor with a drive shaft, reciting these components and never reciting any feedback system. *See* Asserted Patent, 2:14-16, 3:60-63, 4:9-10.

The specification also teaches that any “control electronics”—like a feedback system—are “optional”:

The drive 11 encloses **at least** an electric motor as servo member, **optionally** also a gearing unit and/or for a use for instance as autarkic finger-prosthesis an electric voltage source as well as control electronics (battery, accumulator etc.), wherein in particular the latter components may be also arranged in the core 15 of the second phalanx 6.

Asserted Patent at 4:9-14 (emphasis added). Dr. Ben-Tzvi admits, in view of this text, that the control electronics are optional. Ex. 5 (Ben-Tzvi 4/3 Trans.) at 105:13-106:17. This contradicts

Defendants’ proposed construction that would *require* a feedback system as a part of the servo drive.

Second, there is also no support in the intrinsic evidence for Defendants’ proposed “self-contained” requirement. Claim 1 does not teach that the servo drive must be “self-contained.” Nor does the specification, or the file history. Rather, the specification teaches that drive 11’s optional “control electronics” may be located elsewhere, *i.e.*, “**may** be also arranged in the core 15 of the second phalanx 6.” Asserted Patent at 4:9-14 (emphasis added).

Third, if this Court considers Defendants’ extrinsic evidence (*e.g.*, Dr. Ben-Tzvi’s opinion and dictionary definitions), it should also take note of other extrinsic evidence, namely the Asserted Patent’s German priority application that uses a German term that translates “servo drive” to “actuator,” and therefore similarly contradicts Defendants’ proposed construction. *See Microwave Vision, S.A. v. ESCO Techs. Inc.*, No. 14-CV-1153-SCJ, 2015 WL 11237099, at \*10 (N.D. Ga. July 15, 2015) (finding “construction specified by the intrinsic record is further confirmed by the dictionary definitions of the French terms used in the original foreign application from which the [asserted patent] is descended.”).<sup>3</sup> In support of Defendants’ position that the claimed servo drive must contain a feedback system, Dr. Ben-Tzvi contrasts his purported understanding of the term “servo drive” with an “actuator,” and opines that a servo

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<sup>3</sup> The Asserted Patent claims priority to (and incorporates) German Patent App. No. DE 102008056520, which was filed in German. Asserted Patent, Coversheet. The term “servo drive” that appears in issued claim 1 corresponds to the German word “Stellantrieb” in the original German application, which a recently-performed machine translation indicates translates to “actuator” (although it was translated as “servo drive” in claim 1 for the U.S. application that issued as the Asserted Patent). Ex. 7 (VINCENT\_004288) at 4304 (original German application, claim 1); Ex. 6 (VINCENT\_004194) at 4211 (translated claim 1 recites in part: “an actuator for the first articulated joint (2) with motor (11) with drive shaft (12)”). The translated specification also consistently uses the term “actuator.” Ex. 6 (VINCENT\_004194) at 4198, 4201, 4203, 4207.

drive features a “self-contained or closed-loop feedback system” and that “is the primary difference between a servo drive and actuators or simple electric motors.” Ex. 4 (Ben-Tzvi Decl.) at 46. Thus, the specification of the Asserted Patent recites an embodiment with an “actuator,” which, by Defendants’ expert’s own admission would lack a self-contained feedback system. This reinforces that the claimed “servo drive” does not necessarily, but only optionally, includes a feedback system. *See Oatey Co. v. IPS Corp.*, 514 F.3d 1271, 1276 (Fed. Cir. 2008) (“We normally do not interpret claim terms in a way that excludes embodiments disclosed in the specification.”).

Fourth, the plain meaning of “servo drive” is consistent with the overall invention of the Asserted Patent. While having separate servo drives (i.e., motors) in each finger element facilitates the independent movement of each finger, there is no evidence that a single feedback system could not control all the separate motors. *See* Ex. 6 (VINCENT\_004194) at 4201) (“[Prior art] systems do not include independently driven finger elements, whereby all the actuators required for operation are contained in the finger element. In these systems, the drives are arranged outside the finger elements. They are therefore not conceptually suitable for use as a single finger prosthesis.”).

For these reasons, this Court should afford the claim term “servo drive” its plain meaning, or construe it as a motor with a drive shaft, as explicitly taught by the Asserted Patent.

**B. *“a coupling mechanism between the first hinge connection and the second hinge connection”***

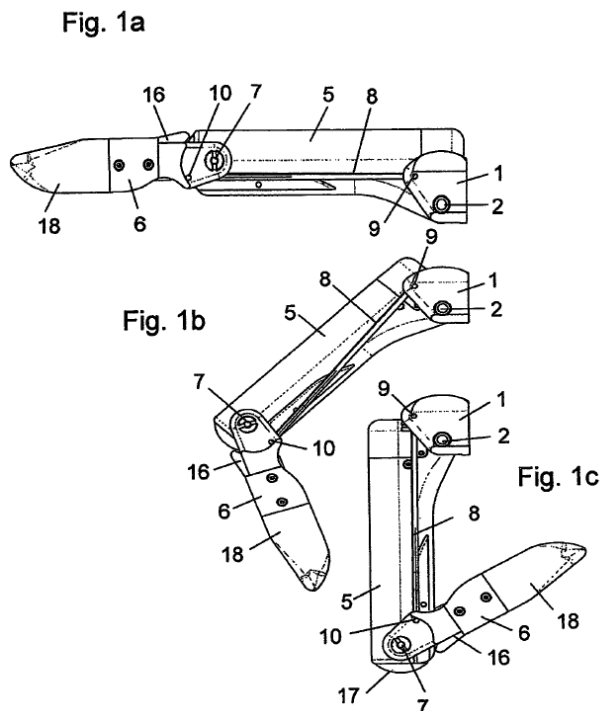
<b>Claim</b>	<b>Plaintiff’s Proposed Construction</b>	<b>Defendants’ Proposed Construction</b>
Claim 1	This phrase should be given its plain and ordinary meaning.	A component connecting and positioned within the space separating the first and second hinge connections

Here again, both parties agree that the term “coupling mechanism” is a term understood by one of skill in the art. Therefore like “servo drive,” this term should also be afforded its plain

and ordinary meaning. *See* Ex. 4 (Ben-Tzvi Decl.) at ¶ 60. Also again, though, Defendants nevertheless propose a construction that departs from this meaning, in this instance very clearly to support a non-infringement position.

1. “Coupling mechanism” should be given its plain and ordinary meaning

The “coupling mechanism” of the Asserted Patent serves to move the two parts of the finger element, the first phalanx and the second phalanx, together in a natural manner as the finger is lifted and lowered. *See* Asserted Patent at 3:39-59. This is shown in Figures 1(a)-(c) (shown right here), which start with the finger extended, and move both phalanxes relative to one another as the finger turns/lowers.



The words of this phrase are straightforward and readily understood by a POSITA as requiring a mechanism that couples the hinge connections. As Vincent Systems’ expert Dr. Collins explains, a POSITA would understand the plain meaning of this language to simply mean that the hinge connections are coupled, i.e., constrained, such that they move together. Ex. 1 (Collins Decl.) at ¶¶ 39-44. Defendants’ expert Dr. Ben-Tzvi agrees one of ordinary skill in the art would also understand the meaning of this term. *See* Ex. 5 (Ben-Tzvi 4/3 Trans.) at 142:4-11)(Q: “[Coupling mechanism], in your opinion, is not indefinite, correct?” A: “Correct.”).

Dr. Collins’ explanation of this term’s plain meaning is confirmed by the specification, which teaches that it is “rotation movement” that is “coupled via the coupling mechanism:”

The first phalanx 5 is in return connected with the second phalanx 6 via a second hinge connection, wherein the second hinge axis 7 forms the rotation axis for the second phalanx. **The rotation movement of the first and second phalanges around the according rotation axes is coupled via a coupling mechanism** (cf. FIG. 1 a to c and FIG. 4 a to d).

Asserted Patent at 3:46-52 (emphasis added).

Because the plain meaning of this phrase is clear, and nothing in the intrinsic record warrants a different or narrower construction, the Court need not construe it.

2. Defendants’ proposal for construing “coupling mechanism...” should be rejected because it lacks any basis in the intrinsic evidence

Defendants propose to limit the spatial positioning of the “coupling mechanism” by construing the term as “a component connecting and positioned within the space separating the first and second hinge connections.” This construction is both contrary to the intrinsic evidence, and further artificially contrived to support Defendants’ noninfringement position.

First, the language of claim 1 does not teach that the coupling mechanism must be *connected to*, or *confined to the space between*, or *not extend beyond*, the first and second hinge connections. Asserted Patent, Claim 1. *See Douglas Dynamics, LLC v. Buyers Prod. Co.*, 717 F.3d 1336, 1342 (Fed. Cir. 2013) (“The district court erred, however, in construing the term ‘connected to’ in claim 45 to require a direct connection between the A-frame and the mounting frame. The plain language of the claim counsels against this narrow interpretation. ... The ordinary meaning of ‘connected to’ encompasses indirect linkages.”).

Second, the specification, including Figs. 1a-c, clearly shows an embodiment wherein the coupling mechanism is *not* directly connecting or positioned within the space separating the first hinge connection at hinge axis 2 and second hinge connection at hinge axis 7. *See* Asserted Patent at 3:39-59; Figs. 1a-c. Rather, the coupling mechanism (“spring bar connections 8”) attaches to and is in the space between “bore 9” of “carrier component 1” and “bore ... 10” of

“second phalanx 6.” *See* Asserted Patent, 3:39-59; Figs. 1a-c; 3:6-7 (“The coupling mechanism consists further preferred of one or two spring bar connections ....”). It would be improper to adopt a construction that excludes this preferred embodiment. *See SanDisk Corp. v. Memorex Prods., Inc.*, 415 F.3d 1278, 1285 (Fed Cir. 2005) (“A claim construction that excludes a preferred embodiment ... ‘is rarely, if ever, correct.’” (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed Cir. 1996).)

Third, dependent claim 7 teaches “[t]he finger element according to claim 1, wherein the coupling mechanism comprises at least an elastic connection between the carrier component and the second phalanx in parallel to the first phalanx.” Because Plaintiff’s proposed construction requires the coupling mechanism to be “positioned within the space separating the first and second hinge connections” rather than “between the carrier component and the second phalanx in parallel to the first phalanx” as depicted in Figure 2 and claimed in claim 7, Plaintiff’s proposed construction would exclude claim 7. And because claim 1 must be broad enough to encompass dependent claim 7, it would therefore be improper to adopt a contrary construction of claim 1. *See Littelfuse, Inc. v. Mersen USA EP Corp.*, 29 F.4th 1376, 1380 (Fed. Cir. 2022) (“By definition, an independent claim is broader than a claim that depends from it, so if a dependent claim reads on a particular embodiment of the claimed invention, the corresponding independent claim must cover that embodiment as well.” (citation omitted)); *Trustees of Columbia Univ. in City of New York v. Symantec Corp.*, 811 F.3d 1359, 1370 (Fed. Cir. 2016) (“[C]onstruing [an] independent claim to exclude material covered by the dependent claim would be inconsistent.”).

Fourth, Defendants’ extrinsic evidence in the form of Dr. Ben-Tzvi’s opinion also does not support Defendants’ proposed construction. Dr. Ben-Tzvi cites general dictionary definitions for “between,” but these same dictionaries also include definitions that expressly contradict his position, defining “between” as “in **or through** the space that separate (two things).” *See, e.g.*,

Ex. 4 (Ben-Tzvi Decl.) at ¶ 55 (emphasis added) (citing MC0006353-6355). In any event, dictionary definitions should be accorded little weight, particularly in light of the intrinsic evidence. *See Phillips*, 415 F.3d at 1317 (“Dictionaries ... [are] less significant than the intrinsic record in determining the legally operative meaning of claim language.” (citations omitted)).

Finally, “[i]t is well settled that claims may not be construed by reference to the accused device.” *NeoMagic Corp. v. Trident Microsystems*, 287 F.3d 1062, 1074 (Fed Cir. 2002). Dr. Ben-Tzvi admitted at deposition [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Ex. 5 (Ben-Tzvi 4/3 Trans.) at 150:25-151:15; *see also id.* at 195:11-18. This approach to claim construction by Defendants and their expert is wholly improper. This Court should not adopt a proposed construction that was not only made by reference to the accused device but *explicitly* designed to avoid infringement. *See KEG Kanalreinigungstechnik GmbH v. Laimer*, No. 1:11-CV-1948-JEC, 2013 WL 8719444, at \*32 (N.D. Ga Jan. 11, 2013) (“Laimer admittedly proposes a construction to avoid infringement. But litigation-inspired proposed constructions are especially suspect.”).

For these reasons, the claim term “coupling mechanism” should properly be afforded its plain and ordinary meaning as Vincent Systems proposes.

C. *“the threaded screw is supported on the drive shaft form fittingly and **axially movable as well as guided in axial direction by separate guidances**”*

Claim	Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
Claim 1	“is pushed onto the drive shaft as well as limited in its axial movement by separate guidances preferably without play”	<p><b>“axially movable”:</b></p> <p>The threaded screw is able to move along the length (or axis) of the drive shaft in a straight line direction</p> <p><b>“guided in axial direction by separate guidances”:</b></p> <p>Indefinite; or in the alternative:</p> <p>At least two components designed to facilitate movement of the threaded screw along the length of the drive shaft.</p>

The construction of the phrase “**axially movable as well as guided in the axial direction by separate guidances**” is central to the invention of the Asserted Patent. The Asserted Patent explains that “axially movable” means that the threaded screw has been decoupled from the drive shaft to prevent “early drive- or motor-damage as well as a blocking of the worm drive” that might result if the threaded screw was “fixed permanently to the motor shaft, such that in case of an applied load of the finger element high forces may affect the motor.” Asserted Patent at 1:39-44.

Vincent Systems’ proposed construction of this phrase as a whole—as “is pushed onto the drive shaft as well as limited in its axial movement by separate guidances preferably without play”—is taken directly from the language of the specification, and is consistent with this inventive concept. In contrast, Defendants propose separate constructions for “axially movable” and “guided in axial direction by separate guidances,” and by doing so Defendants’ proposal strips both phrases of important context resulting in confusion and an unsupported construction that is also directly contrary to the teachings of the Asserted Patent and would render the claimed device inoperable.

1. “Axially movable as well as guided in axial direction by separate guidances” is properly construed as “pushed onto the drive shaft as well as limited in its axial movement by separate guidances preferably without play”

When properly considered as a single phrase, a POSITA would reasonably understand “axially movable as well as guided in the axial direction by separate guidances” to mean “pushed onto the drive shaft as well as limited in its axial movement by separate guidances preferably without play,” a construction taken directly from the patent specification and consistent with the stated purpose and invention of the Asserted Patent. Asserted Patent at 3:60-4:1.

As explained above, the Asserted Patent employs a worm gear and threaded screw arrangement in which the threaded screw is decoupled from the motor’s drive shaft. Asserted Patent at 1:66-2:34, 3:39-4:1; Ex. 3 (Collins Reb. Decl.) at ¶ 26. The patent then teaches that during operation, the threaded screw is “limited in its axial movability” by “guidances.” Asserted Patent at 3:60-4:1. These guidances ensure that while the threaded screw can on its own move (i.e., is “axially movable”) along the length of the drive shaft, the screw also will not move because it is held in place by the guidances (i.e., “guided in axial direction by separate guidances”). A POSITA would understand that this is necessarily the case because if the threaded screw were to actually move axially in use, the finger element would not work. The threaded screw would not convey the force from the worm gear to the first phalanx to make it rotate about the hinge. Ex. 3 (Collins Reb. Decl.) at ¶¶ 24, 26, 33; Ex. 2 (Collins Trans.) at 132:2-134:20. Vincent Systems’ proposed construction is thus supported by the intrinsic evidence, and further consistent with the overall invention of the Asserted Patent.

More specifically, Vincent Systems’ proposed construction is taken directly from the specification, at column 3, line 60 through column 4, line 1:

FIG. 2 shows a sectional view of a finger element. A motoric drive ii for a threaded screw 13 that is directly attached to the drive shaft 12 is arranged inside a pipe-

shaped first phalanx 5. **The threaded screw is** connected to each other via a not further explained key-slot-connection in rotation direction form fittingly, but **axially movable pushed onto the drive shaft. The threaded screw is** in the embodiment guided in radial direction onto the drive shaft, but is **limited in its axial movability by two guidances 14 preferably without play.**

Asserted Patent at 3:60-4:1 (emphasis added); *see Phillips*, 415 F.3d at 1315 (“[T]he specification ‘is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.’” (citation omitted)).

The specification also provides additional support for Vincent Systems’ proposed construction in its description of the prior art and the problem to be solved by the invention. *See Kaken Pharm.*, 952 F.3d at 1352 (“A patent’s statement of the described invention’s purpose informs the proper construction of claim terms ....”). The specification teaches that a problem with certain prior art prosthetic finger elements using a similar worm gearing arrangement to that of the Asserted Patent was that transfer of axial forces may damage the motor:

[I]n these finger elements, the worm gear is fixed permanently to the motor shaft, such that in case of an applied load of the finger element high forces may affect the motor. An early drive- or motor-damage as well as a blocking of the worm drive under load is abetted therewith.

Asserted Patent, 1:40-44; Ex. 1 (Collins Decl.) at ¶ 47.

Therefore, the specification teaches:

An essential feature of the invention encloses a decoupling of drive shaft and threaded screw in axial direction to the drive shaft. The threaded screw is preferably attached to the drive shaft and is in rotation direction form-fittingly coupled to the drive shaft, for instance via a cogging or a matched joint. Therefore, the axial movability of the drive shaft in the threaded screw has to be assured.

Asserted Patent at 2:28-34.

Accordingly, the threaded screw is *decoupled* from the motor’s drive shaft in the axial direction (along the shaft’s length), but *coupled* in the rotation (or radial) direction, so that when

the motor's drive shaft turns it will turn the threaded screw. *See* Ex. 1 (Collins Decl.) at ¶¶ 50-52. The specification further teaches:

Thus, the motor does not serve via the drive shaft as axial guidance of the threaded screw, but separate guidances. They are arranged preferably in form of sliding guidances at both front edges of the threaded screw.

Asserted Patent at 2:35-38. The motor itself does not guide the threaded screw in the axial direction, but rather separate guidances at the edges of the threaded screw provide this function. *See* Ex. 2 (Collins Reb. Decl.) at ¶ 26. As Dr. Collins explains, the threaded screw will experience a large axial load during operation, which load is thereby kept from the motor via decoupling of the threaded screw from the drive shaft. *Id.*; *see also* Ex. 1 (Collins Decl.) at ¶ 47. But there still must be something to absorb that axial force: the guidances. Ex. 1 (Collins Decl.) at ¶¶ 47-50.<sup>4</sup>

Vincent Systems' proposed construction properly takes into account this context, and is directly taken from the specification. *See Kaken Pharm.*, 952 F.3d at 1352. It is therefore properly adopted by the Court.

2. Defendants' proposed constructions contradict the intrinsic evidence and would result in an inoperative device

Defendants' proposed constructions are, for **axially movable**, "the threaded screw is able to move along the length (or axis) of the drive shaft in a straight line direction" and, for **guided**

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<sup>4</sup> As Dr. Collins explains, the specification teaches that the threaded screw should be limited in its axial movement by the guidances "preferably without play" even if there may be in practice a "small axial play" (as stated elsewhere in the specification) because, as a POSITA would understand, the gap between the guidances and threaded screw should be as small as possible so as to prevent excessive "play" of the threaded screw on the drive shaft that could interfere with operation of the device. *See* Asserted Patent at 2:39-42, 3:60-4:1; Ex. 2 (Collins Trans.) at 132:2-134:20; Ex. 3 (Collins Reb. Decl.) at ¶ 33.

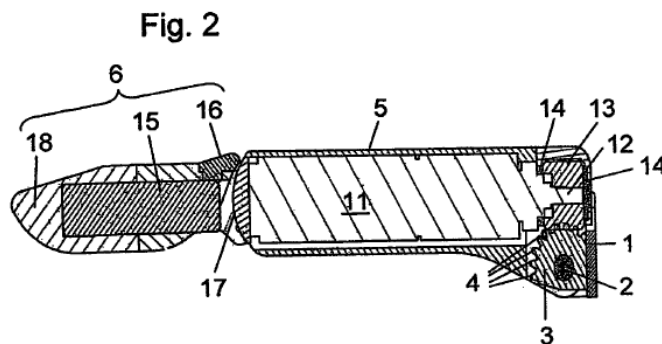
**in axial direction by separate guidances**, “at least two components designed to facilitate movement of the threaded screw along the length of the drive shaft.”

That the threaded screw is “able to move along the length (or axis) of the drive shaft in a straight line direction,” as Defendants propose, is on its own not inconsistent with the patent specification, but is also not correct in that it omits the concept of force. The threaded screw is able to move axially only presuming sufficient force is applied. Ex. 1 (Collins Decl.) at ¶¶ 46-47; *see also* Collins Reb. Decl. at ¶¶ 20-23. As Dr. Collins explains, “the purpose of the axial movability of the threaded screw on the drive shaft is to protect the motor from damage, meaning that the amount of axial force under which movement should occur is any value up to the force that would damage the motor during the lifetime of the device.” Ex. 1 (Collins Reb. Decl.) at ¶¶ 21-22 (citing Asserted Patent at 1:43-44, 1:49-50, 1:56-62).

Even more problematic, though, is that Defendants’ proposal to consider this term separately from the full phrase as used in Claim 1—“the threaded screw is supported on the drive shaft from fittingly and axially movable as well as guided in axial direction by separate guidances”—leads to a result that is inconsistent with the claim language as well as the overall purpose and function of the Asserted Patent, and would improperly read out a preferred embodiment disclosed in the specification. Specifically, Defendants’ collective proposal ignores that while claim 1 teaches that the threaded screw is “axially movable” (as in decoupled from the drive shaft), the threaded screw is also axially *held in place*, or guided, by the guidances. The specification teaches that “[t]he threaded screw is ... **limited in** its axial movability by two guidances 14 **preferably without play**.” Asserted Patent, 3:66-4:1 (emphasis added). If the guidances were, as Defendants’ propose, “designed to facilitate movement of the threaded screw” axially, this would improperly exclude the preferred embodiment in which the threaded screw is “without play” in the axial direction. *See SanDisk*, 415 F.3d at 1285 (“A claim

construction that excludes a preferred embodiment ... ‘is rarely, if ever, correct.’” (quoting *Vitronics*, 90 F.3d at 1582)).<sup>5</sup>

Furthermore, as depicted in Fig. 2 (reproduced again below), there is nowhere for the guidances (14) to move during operation—they are bounded on all sides by other components:



Asserted Patent, Fig. 2; Ex. 3 (Collins Reb. Decl.) at ¶¶ 32-34 (explaining that a POSITA would understand that “the threaded screw (13) cannot move axially because the guidances (14) prevent movement in the axial direction”). The Court should not adopt a construction that reads out the embodiment depicted in Fig. 2. See *Oatey Co. v. IPOS Corp.*, 514 F.3d 1271, 1276 (Fed. Cir. 2008) (“We normally do not interpret claim terms in a way that excludes embodiments disclosed in the specification.”).

Moreover, Defendants’ proposed construction in which the guidances *facilitate movement of the threaded screw* defeats the purpose of the Asserted Patent, would result in an inoperable device, as such movement would not result in rotation of the finger, as Dr. Collins explains:

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<sup>5</sup> Defendants’ expert, Dr. Ben-Tvzi, argues that the patent specification is inconsistent in that it says in one place “small axial play” and in another “preferably without play.” But common sense belies this assertion: “as little as possible and preferably none” is an entirely familiar concept. One, including one of ordinary skill in the art, will clearly understand that these phrases are entirely consistent. As Dr. Collins explains, when a component is held in place it may be preferable and yet impossible to have no “play” (also known as “backlash” or “slop”). Ex. 3 (Collins Reb. Decl.) at ¶ 33.

So you need to leave a very small gap, the smallest gap you can possibly get while it still slides in .... [Y]ou don't want a large play because then when you reverse the direction of the drive, the first thing that happens is your gears shift from being in contact with one guidance they slide over and touch the other guidance. And while they're moving across from one guidance to the other, there is no movement of the joint, you've lost control of the finger joint. And this is a common phenomenon that shows up in a wide variety of mechanisms and gear transmissions. It's commonly dealt with by people designing machines and robots and prosthetic limbs, and so I think it will be quite clear to a person of ordinary skill in the art that this is talking about a way of minimizing the axial play of the threaded screw within the guidances.

Ex. 2 (Collins Trans.) at 132:2-134:20.

“[A] construction that renders the claimed invention inoperable should be viewed with extreme skepticism.” *Talbert Fuel Sys. Patents Co. v. Unocal Corp.*, 275 F.3d 1371, 1376 (Fed. Cir. 2002), *vacated and remanded on other grounds*, 537 U.S. 802 (2002). A POSITA would understand that Defendants proposed construction would result in “los[s] [of] control of the finger joint.” Ex. 2 (Collins Trans.) at 132:2-134:20; *see also* Ex. 3 (Collins Reb. Decl.) at ¶ 33. Dr. Ben-Tzvi even effectively admits that Defendants’ proposed construction would render the device inoperable. In response to the question “If the threaded screw is moving along the drive shaft, how is the finger lifted by the turning of the screw?”, Dr. Ben-Tzvi testified “I actually don’t know. I mean, that’s what I read in the claim. ... It is confusing.” Ex. 5 (Ben-Tzvi 4/3 Trans.) at 204:9-19. Dr. Ben-Tzvi was also unable to explain why the threaded screw is purportedly “intended to move while the finger is in operation,” answering “I don’t know why, but that’s what it says.” *Id.* at 218:22-219:2. Accordingly, the Court should reject Defendants’ proposed construction and adopt Vincent Systems’, which is properly grounded in the intrinsic evidence.

3. The phrase “guided in axial direction by separate guidances” is not indefinite

Defendants also argue that the phrase “guided in axial direction by separate guidances” is indefinite. To be definite, “a patent’s claims, viewed in light of the specification and prosecution history, [must] inform those skilled in the art about the scope of the invention with reasonable certainty.” *Nautilus*, 572 U.S. at 910. The assessment includes “the knowledge of the ordinary skilled artisan.” *BASF Corp. v. Johnson Matthey Inc.*, 875 F.3d 1360, 1365 (Fed. Cir. 2017); *see also Dow Chem.*, 809 F.3d at 1225 (Definiteness “is evaluated in light of knowledge extant in the art at the time the patent application is filed.”).

Here, the specification’s teachings, for example that the threaded screw must be decoupled from the motor’s drive shaft to prevent motor damage and “limited in its axial movability by two guidances 14 preferably without play” as depicted in Fig. 2, in light of a POSITA’s understanding of the mechanical operation of such devices and the forces involved, would inform a POSITA with reasonable certainty that “as well as guided in axial direction by separate guidances” means that the threaded screw is limited in its axial movement by separate guidances preferably without play. *See* Asserted Patent, 1:40-44, 2:28-38, 3:60-4:1, Fig. 2.

As Dr. Collins opines, a POSITA would understand “the basic function of worm gear transmissions,” such as that taught by the Asserted Patent. Ex. 3 (Collins Reb. Decl.) at ¶ 26. A POSITA would understand the Asserted Patent’s description of the problem with damage to motors in prior art devices, and how the decoupling of drive shaft and threaded screw would prevent this damage. *Id.*; Asserted Patent at 1:39-62, 2:28-34. A POSITA would also understand that, during operation, something (if not the drive shaft of the motor) must react out the threaded screw’s axial forces and hold the threaded screw in place relative to the first phalanx so that when the threaded screw turns the finger element will lift or lower. *See* Ex. 2 (Collins Trans.) at

132:2-134:20; Ex. 3 (Collins Reb. Decl.) at ¶ 33; Ex. 1 (Collins Decl.) at ¶¶ 49-50. Given this background, a POSITA would readily understand that, as claimed and described in the Asserted Patent, “guidances are the features that prevent axial movement of the threaded screw relative to the finger segment.” Ex. 3 (Collins Reb. Decl.) at ¶ 26.

A POSITA would also readily understand the term “guidances” to be equivalent to a mechanical “guide,” which is a commonly used term. *Id.* at 28. A POSITA would also readily locate the guidances (14) depicted in Fig. 2, as discussed above. *Id.* at ¶ 32. And, a POSITA would understand the Asserted Patent’s teaching that the threaded screw be limited in its axial movement “preferably without play” to mean that the gap between the guidances and the threaded screw should be as small as possible—not too small so as not to interfere with insertion or rotation of the threaded screw, but not so large as to lead to “play” that would interfere with operation of the device. *Id.* at ¶ 33. The phrase “guided in the axial direction by separate guidances” would be clearly understood by a POSITA, and Defendants have not shown by clear and convincing evidence that this phrase is indefinite.

In sum, the Court should reject Defendants’ indefiniteness argument, and also their proposed construction for “axially movable” and alternative construction for “guided in axial direction by separate guidances,” which are contrary to the intrinsic evidence and would render the claimed device inoperable. Instead, the Court should adopt Vincent Systems’ proposed construction, which is taken directly from the specification and consistent with the purposes of the Asserted Patent.

## **VI. CONCLUSION**

For the reasons set forth above, Vincent Systems respectfully requests that the Court either afford either plain and ordinary meaning to or construe the disputed claim terms as Vincent Systems proposes herein.

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Respectfully submitted,

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## CERTIFICATE OF SERVICE

I hereby certify that on April 24, 2024, I caused the foregoing to be served electronically to the following:

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